Illusionist

NLP, ML and workflow driven Chat Agent platform

Tingdong Chen @ Astound.ai

context

- Sales driven product
- POC
- Audient: business stakeholders

- Multi client (shared db)
- Fast development
- Flexibility

Tech Stack

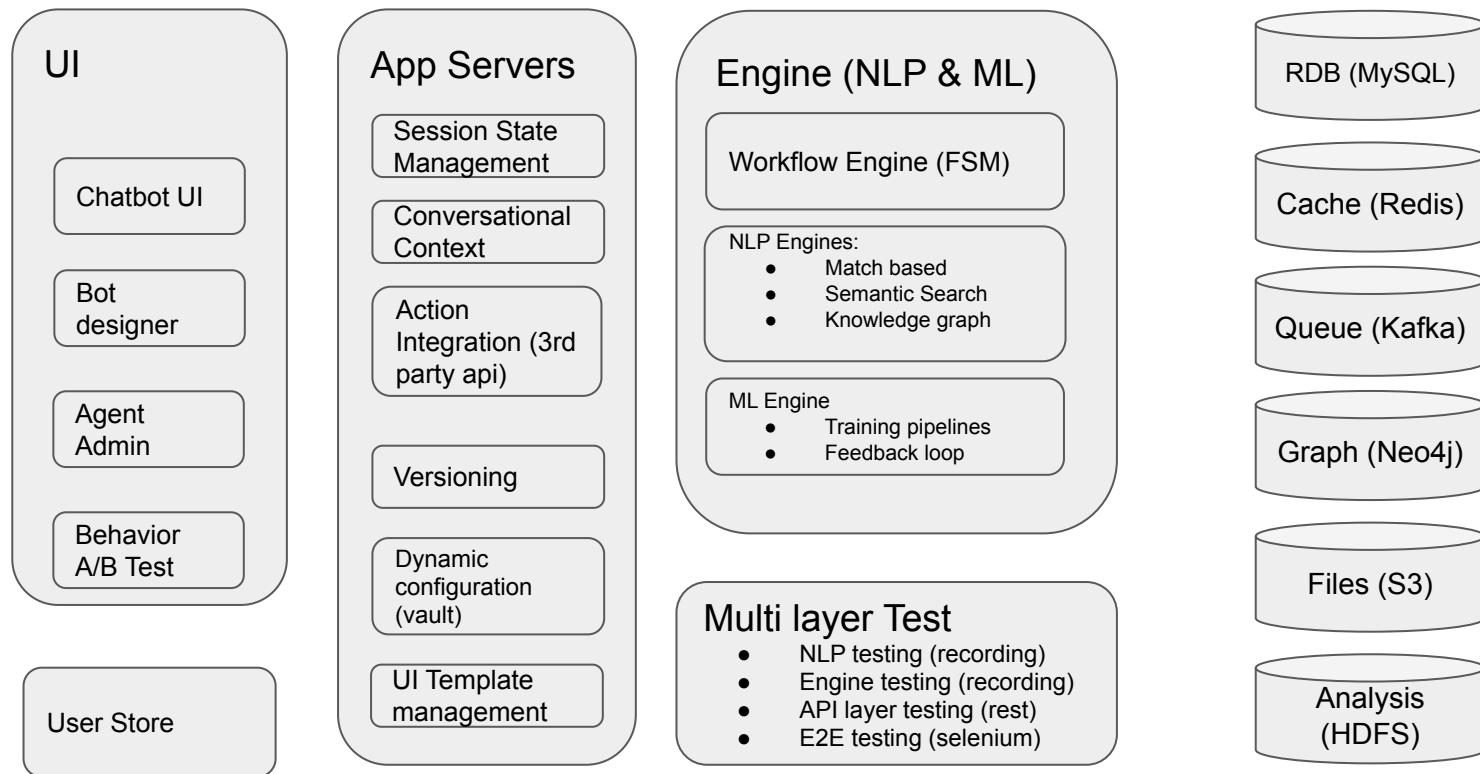**Frontend**: Vuejs, Bootstrap, SASS, Retejs, Webpack.

Backend:

- App: Python, Flask Appbuilder, Gunicorn, SqlAlchemy on MySQL.
- Data: Redis to hold conversation context, Kafka for data pipeline.
- Core: ML and NLP engine.

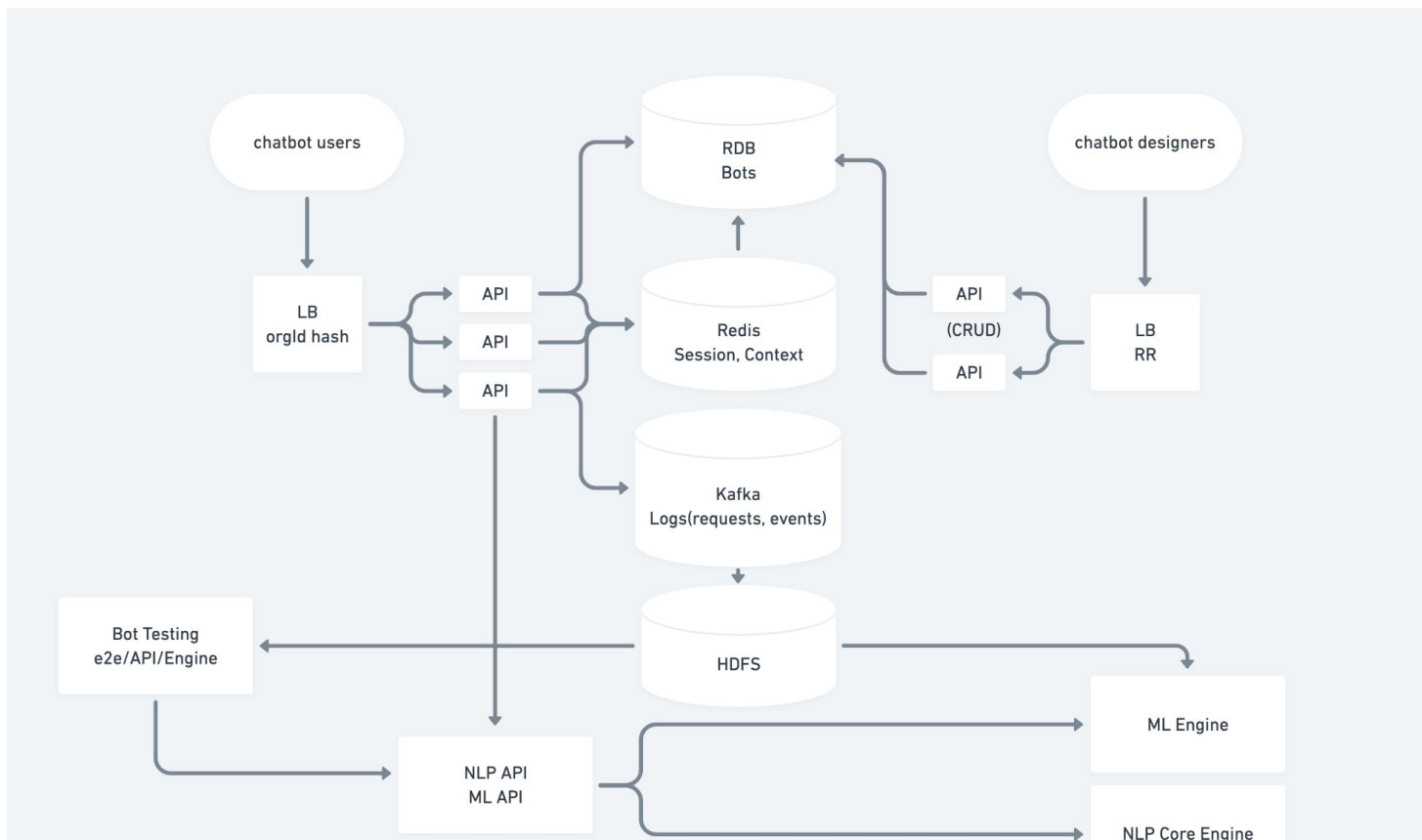**Integration**: through API. ServiceNow, Google, Jira, Okta, Slack.

Testing: NLP conversational testing framework. Core libraries, API layer, Selenium e2e.
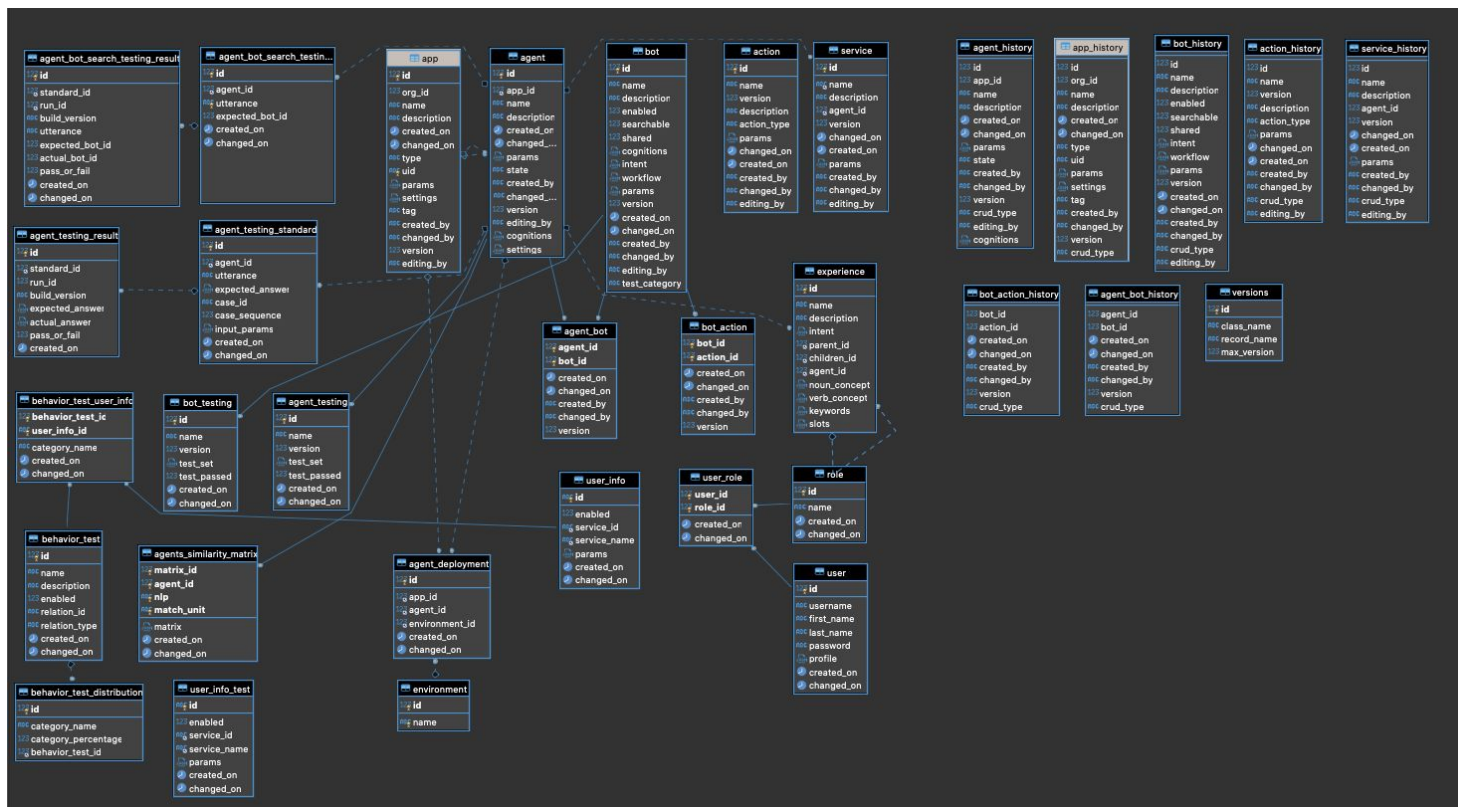
Deployment: AWS, Docker, Cloudera, Jenkins.

System Design

UI
- Chatbot UI
- Bot designer
- Agent Admin
- Behavior A/B Test

User Store

App Servers
- Session State Management
- Conversational Context
- Action Integration (3rd party api)
- Versioning
- Dynamic configuration (vault)
- UI Template management

Engine (NLP & ML)

Workflow Engine (FSM)

NLP Engines:
- Match based
- Semantic Search
- Knowledge graph

ML Engine
- Training pipelines
- Feedback loop

Multi layer Test
- NLP testing (recording)
- Engine testing (recording)
- API layer testing (rest)
- E2E testing (selenium)

RDB (MySQL)

Cache (Redis)

Queue (Kafka)

Graph (Neo4j)

Files (S3)

Analysis (HDFS)

Bot design

Data model

Bots Management Overview
App -> Agent -> Bot -> Action -> Service

Bot Designer - 2
Office printer troubleshooting

It.Bose.Forms.Kb.Search

Benefits Portal, No Form

Show Email KBAs

Show Forms

Contact Service Desk

Start

End

Yes, Resolved

Show Printer KBAs

Utterance	connect to a printer
Pretext	Here is a list of knowledge articles that are most relevant to your request:\<br/\> \<ul\> \<li\> \<a href="http://google.com"\> How to find a network printer near you \</a\> \</li\> \<li\> \<a href="http://google.com"\> How to install printer drivers \</a\> \</li\>
Context Variable	

○Update   ○Append   ○Reset

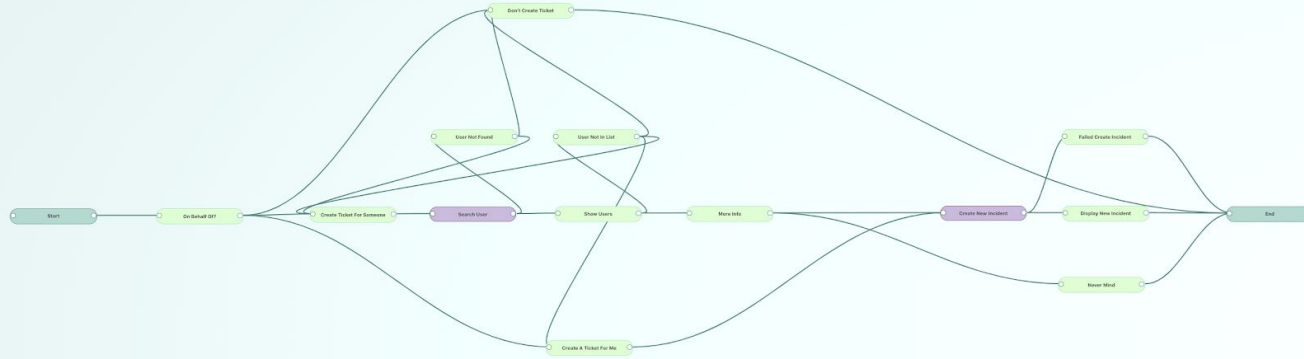|	
Transition	
Pretext For Templated Answer	

Bot Designer - Action
Integration with ServiceNow ticketing system

Bot Designer - Intent metadata
Office printer troubleshooting

Intent | Debugger

Name:

It.BofA.printer.not.working

Description:

Printer is broken, paper jam

Domains:

IT ✕ ⌄

Tags:

Add a tag

Intention Prototypes: ⊕

My printer isn't working ⊗

Printer is broken ⊗

Printer broken issue ⊗

My printer is not working ⊗

Bot Debugger
real-time tools for bot designer

Intent	Debugger

Test result for current bot: Passed.

● ▶

<div align="right">

October 1st, 2020 10:45:52

order a new phone

</div>

October 1st, 2020 10:45:52
May 20th, 2019 02:26:53
I've checked your role, location, and approval policy. Here's a list of available phones you can order

LG G7
ThinQ

Bot simulator
Debugging tools for developers and data engineers

Simulater

Api Input

Browser

Session Id

Organization

App Id:

5

User Info:

Chatbot User Id:

neva_test_user

First Name:

Virtual Agent

Country:
- ○ Germany
- ○ United States of America

Or type it here: Germany

Company:

adidas AG

Group:

adidas_incident_manager

Incidence

October 1st, 2020 10:48:04
hi

Workflow States

NLP Performance Reporting
Semantic similarity matrix

Intents: 23   spacy paragraph

Intents: 82   spacy list